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SERPP Study #7: Report Digest

THE PROCESS OF CURRICULUM DEVELOPMENT AND DELIVERY

1. Findings:

History and present status

- From the first formal exercise in curriculum development (National Education Commission Report, 1959) to the most recent (National Education Policy [NEP], 1992) a series of revisions and modifications have taken place. The 1992 NEP envisages:
 - a new cycle of curriculum development
 - renewed emphasis on the delivery of the curriculum
 - wider professional involvement in curriculum development
 - greater relevance of vocational curricula to job markets
 - stronger links with textbook development, teacher training, and examinations
 - liberalization of textbook publishing and choice.
- A Federal Act (1976) set up a National Bureau of Curriculum and Textbooks [NBCT] to be the competent authority for curriculum in grades 1-12. In practice, however, this took the form of a "Curriculum Wing" within the Ministry of Education. Four Provincial curriculum bureaux and four Textbook Boards carry out curriculum and textbook development activities, co-ordinated by the Curriculum Wing.
- The broad framework for the present secondary school curricula (grades 9-12) was determined by the Curriculum Wing and reviewed (but not substantially altered) by the Provincial Curriculum Bureaux.

Mechanisms and procedures

- Organization: The Curriculum Wing is headed by the Joint Educational Adviser [JEA], Curriculum Wing, assisted by four Deputy Educational Advisers [DEAs], respectively responsible for Basic Science; Languages and Social Science; Religious Education; Examinations, Textbooks and Secondary Education; and Teacher Education.
- Procedures: Typically, curriculum development includes
 - establishing schemes of studies
 - designing subject curricula for each grade
 - developing subject curriculum materials
 - monitoring delivery of the curriculum by teachers
 - evaluating curriculum effectiveness.
- The Curriculum Wing's national subject specialist committees frame a particular draft (subject/grade) curriculum. This is then disseminated to the Provincial Curriculum Bureaux, which have Provincial subject committees that review drafts and recommend amendments, but the Curriculum Wing has final authority for approval. Implementation of the curriculum is done via the Provincial Bureaux, but the Textbook Boards receive their instructions directly from the Curriculum Wing.

2. Issues:

Staffing

- Originally the Government sanctioned a large number of specialist posts for the NBCT. When the MOE converted the NBCT to one of its "Wings", *subject specialization* requirements (e.g. a Master's degree in Physics) were subordinated to standard MOE recruitment criteria (e.g. a Master's degree in any subject). Thus the Curriculum Wing is over-staffed in some specializations and under-staffed in others.
- Frequent transfers within the MOE prevent long-term assignments to the Curriculum Wing. Staff who have received foreign training in curriculum work are often lost to other departments. There is little continuity and therefore a lack of commitment to long-term policy implementation.

Duplication of functions

- There is much overlap between the functions of the Curriculum Wing and the Provincial Bureaux. Both sides complain of lack of communication. Meaningful feedback is minimal.

Participation

- There is no effective mechanism for tapping into the expertise of working teachers in developing or implementing the curriculum. The curriculum appears to them "imposed" rather than jointly developed.

Curriculum quality

- Secondary curricula have remained relatively stable over the years. This has attracted criticism; but it has also provided continuity and "conservation of values" to the education system. Because all schools are required to follow the same curriculum, it provides a framework for equality of provision across Pakistan, not only across rich and poor schools but across the student ability range and for girls as well as boys.
- However, the curriculum is highly centralized and does not encourage innovation, diversity, or local initiative.

Textbooks

- Under the National Education Policy 1992, textbooks and materials provision are to be liberalized. A National Textbook Conference (September 1994, Karachi) recommended that multiple textbooks be allowed, and that the private sector be encouraged to participate in publishing, producing, distributing, and selling textbooks on a competitive basis.
- Textbooks for grades 9-12 in English, mathematics, science, computer science, statistics, teacher education, and commercial and technical subjects will be the first to benefit from this liberalization.
- The Curriculum Wing has since announced an open competition for both public and private sector publishers to register for eligibility to bid for textbook/teacher guides in selected subjects, by mid-January 1995.

3. Strategies:

Staffing

- ✓ A viable NBCT with its own sanctioned posts, recruitment rules, and delegation of powers and duties should be created. Professional expertise must be the criterion for recruitment, hiring and promotion.
- ✓ The NBCT's financial appropriation should be separate from the Ministry's.
- ✓ Meanwhile the existing financial and manpower resources available to the Curriculum Wing and the Institute for the Promotion of Science Education and Training [IPSET] need to be better used.

Duplication of functions

- ✓ Better links and clearer allocation of powers and duties between the Federal and Provincial bureaux, and between the bureaux and the Boards of Secondary and Intermediate Education (examinations), and the Textbook Boards are essential.

Participation

- ✓ Officials from the Curriculum Wing and the Provincial bureaux must develop mechanisms to involve teachers so that curriculum developers and textbook writers can benefit from their experience.
- ✓ Copies of all curricula must be made widely available to all secondary level institutions and subject teachers. Budgetary provision for the Provincial bureaux should be made to provide copies.

Curriculum quality

- ✓ Attitudinal change is required to improve the quality and efficiency of the curriculum: curricula, textbooks, examinations and teacher training should all be regarded as parts of a single system instead of "different planets". There is a lack of commitment on the part of the Federal Government to curriculum quality; peripheral aspects and vested interests appear to prevail. Systematic development of the curriculum should take place rather than a series of minor changes.
- ✓ Consensus of all the Provinces about the Scheme of Studies for grades 11-12 needs to be reached as a matter of urgency. Approval of the Scheme has been held up by political interests in the Provinces. This issue must now be resolved.
- ✓ Supervision of curriculum implementation and, in particular, evaluation of the curriculum must also receive urgent attention. No evaluation of primary ~~and secondary~~ school curricula has taken place; therefore, systematic curriculum revision ~~and~~ development are impossible.

Textbooks

- ✓ Before 1976, curriculum development, examinations, and textbooks were all in the hands of the Boards of Secondary and Intermediate Education. With the separation of these functions, control over the content and quality of textbooks has weakened, and linkages (e.g. with the examination boards) are almost non-existent. Especially now that textbook provision is to be liberalized, **quality control measures** must be put in place by the Curriculum Wing.

4. **Possible Project Inputs:**

✓ **Technical Assistance**

- Development of organizational, professional, management and financial structures for the National Bureau for Curriculum and Textbooks.
- Development of a curriculum supervision and evaluation system.

✓ **Training**

- For NBCT staff and management.

✓ **Physical facilities**

- Facilities and equipment for NBCT.

THE PROCESS OF CURRICULUM DEVELOPMENT AND DELIVERY

I. **BACKGROUND: GUIDELINES OF EDUCATION POLICIES**

The process of curriculum development and delivery has to be in consonance with national policies on education and aims to be achieved through education. In the context of Pakistan, there has been no dearth of statements of policy, right from the Education Conference organized during the life time of the Quaid-e-Azam in 1947. Each such conference or policy made recommendations about reforms in education. Numerous "prescriptions" were suggested in the Five Years Plans and the Education Policies. This section presents a brief over-view of major recommendations relating to the improvement of curricula and textbooks.

A. **National Education Commission, 1959**

The first formal exercise in curriculum development was undertaken as a result of the Report of National Education Commission 1959 which analyzed the situation pertaining to curriculum development as follows:

"For historical reasons, the present secondary curricula are predominantly theoretical and bookish. They do not adequately cater for all the talents of adolescents or the needs of our society, and are dominated by examinations and requirements outside the control of school authorities. At the same time, they contain subjects which have been added, without proper planning and with little correlation and grouping between them. The curriculum at the secondary stage be based on two basic principles. First, it must provide adequate knowledge of subjects that will be needed by every pupil for leading a useful and happy life in a fast developing society. This should form the core of compulsory subjects which every student must take up. Secondly, the curriculum should include such additional subjects and training as will form a preparation for specific vocations and careers.

The process of curriculum construction and its revision in the light of evolving social and individual interests and needs be a continuous one".

The curriculum should be adapted to the mental abilities of children aged five to ten and related to the normal situations they are faced with in every day life. It must be so designed as to develop the basic skills in reading, writing, and arithmetic, a liking for working with one's own hands, and a high sense of patriotism. Teaching methods should, as far as possible, use the Activity or Project approach, and teachers should show initiative in the use of local materials as teaching aids.

Due emphasis should be placed on the teaching of the national languages."

The Commission envisaged a national system of education. It outlined major aims and specific objectives of education across levels (primary, secondary and higher education). National Curriculum Committee constituted by the Federal Ministry of Education consisting of scores of educators drawn from all parts of Pakistan met for many days at Abbottabad and published a two-volume report on secondary level curricula for grades 9-12.

B. Education Policy 1972-1980:

It provided for establishment of National Curriculum Bureau to review and up-date the curricula for all stages of education including technical and vocational education, to keep them constantly under review and to revise and modernize them at regular intervals, the National Curriculum Bureau will be strengthened and re-organized and Curriculum Centres will be established and/or developed in each Province.

The curricula for the elementary stage (grades 1-8) and the secondary stage (grades 9-12) will be revised in detail to eliminate over-loading, emphasize learning of concepts and skills, and encourage observation, exploration, experimentation, practical work and creative expression. This task will be assigned to representative committees of specialists, lecturers, practicing teachers and curriculum research experts.

The Policy also provided that "as the curricula were revised, new improved textbooks will be simultaneously be prepared for publication." The policy recognized that the task of producing the enormous number of low cost books required could not be performed by the existing Textbook Boards or the commercial publishing houses alone. "To strengthen and supplement these existing book production channels, therefore, a National Foundation for Book Production will be established. The Foundation will undertake writing, editing, translating, printing and publishing both textbooks and reading material for schools, colleges and adults and reading materials of various kinds for the general public."

Recommendations of the said policy relating to curriculum development are summarized below:

1. Designing curricula relevant to the nation's changing social and economic needs compatible with our basic ideology and providing a massive shift from general education to more purposeful agro-technical education.
2. Curricula, syllabi and textbooks will be revised to eliminate overloading to emphasis learning of concepts and skills, and to encourage observation, exploration, experimentation practical work and creative expression.
3. The system of elementary education will be so designed that the knowledge and skills imparted, attitude implanted, and the learning methods employed will ensure that those not proceeding to secondary education can be usefully absorbed into the economy of the local community. For those leaving school after grade 8, special courses of training in the skills of their vocational interests will be provided in the school workshop. It is essential that children who drop out after grade 8 should carry with them enough skills to return to their local or ancestral vocation as better farmers or craftsmen.

4. The integration of general and technical education will equip secondary and college students for gainful employment, including self-employment, in industry, agriculture, business, home economics and education in addition to providing them a programme of general education. the areas of vocational occupational studies for which facilities will be developed include:

electronics, auto-electricity, plumbing, household electrical appliances, diary forming, poultry forming, vegetable forming, sericulture, crop and livestock production, shorthand, typewriting, insurance and estate brokering, cleaning, forwarding and shipping practices, home management, cooking and baking, first aid and home nursing, food production and preservation, etc.

5. Education will be introduced as an elective subject at the matriculation, intermediate and degree levels. In this way, a major part of the vocational training of teachers will be conducted in institutions of general education.
6. An integrated science course, including mathematics, biological and physical sciences, will be introduced at the High and Intermediate stages with a view to giving students a more comprehensive and diversified preparation enabling them to have a wider choice at the time of entry into higher institutions of professional and general education.
7. To review and up-date the curricula for all stages of education, including technical and vocational education, to keep them constantly under review and to revise and modernize them at regular intervals, the National Curriculum Bureau will be strengthened and reorganized and Curriculum Centres will be established and/or developed in each province.
8. The curricula for the elementary stage (grade 1-8) and the secondary stage (grade 9-12) will be revised in detail to eliminate overloading, emphasize learning of concepts and skills, and encourage observation exploration, experimentation, practical work and creative expression. This task will be assigned to representative committees of specialists, lecturers, practicing teachers and curriculum research experts.

The Education Policy 1972 was, thus, second major attempt to outline principles of curricular changes, shifting emphasis from general secondary education to agro-technical education. Schemes of studies were modified and curricular programmes revised emphasizing development of reading materials and retraining of teachers to implement curricular reforms under the Policy.

C. National Education Policy, 1979

This Policy determined new priorities for incorporation of contents on Islam and ideology of Pakistan, national cohesion and integration. Priority was assigned to development of creative activities among children, promotion of technical and vocational education, preparation of supplementary reading materials for students and teachers' guides/manuals/teaching kits for use by teachers. Particular emphasis was placed on science and mathematics education.

This policy provided that the entire curricula and textbooks will be reviewed to ensure that adequate content on Islam and Islamic ideology is included and due coverage is given to instructional materials aimed at promotion of national cohesion and integration. The policy included an ambitious programme of how curricula from primary to university levels will be reviewed and reorganized.

D. National Education Policy 1992

This policy envisaged that a new cycle of curriculum development will be initiated and a major effort will be directed towards improving the delivery of the curriculum. It also anticipated enlarging the professional base of institutions involved in curriculum development and relating the vocational curricula to employment market. It anticipated that the linkages among curriculum development, textbook writing, teacher training and examinations will be reinforced.

In addition to coordinating curriculum and textbook development, the policy provided that "for each course multiple textbooks may be approved and the institutions be allowed to select any one of these texts." Deviating from the past the 1992 Policy provided that private publishers may be encouraged to produce school textbooks.

E. Establishment of Textbook Boards

With regard to textbooks, the recommendation of the 1959 Commission was to set up Textbook Board. In this connection, the relevant recommendations are reproduced below:-

"The responsibility for drawing up syllabuses and prescribing courses is normally that of the education authorities. However, to realize the national objectives of education laid down in this report, the Ministry of Education set-up a Textbook Board. It should be a small and autonomous body with representatives from the provinces and should work through textbook committees operating within the sphere of each education authority."

"The responsibility of the Textbook Board should be:-

- (i) to frame the syllabuses according to the ~~recommendations made in this Report;~~ and
- (ii) to lay down policy for the preparation, printing and publication of Textbooks."

II. CONSTITUTIONAL/LEGAL PROVISIONS ABOUT CURRICULUM

The Constitution of Pakistan brought curriculum and syllabuses, planning, centres of excellence, standards of education and Islamic education on the Concurrent List *vide* Schedule IV Part II items 38 & 39. A Federal Act (No X of 1976) - see Annexure I - authorized the Competent Authority (National Bureau of Curriculum and Textbooks of the Ministry of Education) to

- a) prepare or cause to be prepared schemes of studies, curriculum, manuscripts of textbooks and schedules or strategy for their introduction in various classes of an institution in connection with the implementation of the education policy of the Federal Government;
- b) approve manuscripts of textbooks produced by other agencies before they are prescribed in various classes of an institution; and
- c) direct any person or agency in writing to delete, amend or withdraw any portion, or the whole, of the curriculum, textbook or reference material prescribed for any class of an institution within a period specified in such directive."

Development of curricula and approval of textbooks up to Higher Secondary level, Certificates/Diplomas and corresponding undergraduate courses constitute the responsibility of the Ministry of Education (Curriculum Wing). The National and four Provincial Curriculum Bureaux jointly undertake curriculum reform in the country and thus national curriculum is evolved and followed throughout the country. Similar functions in respect of graduate and post-graduate level fall under the purview of the University Grants Commission.

III. FUNCTIONS OF THE NATIONAL BUREAU OF CURRICULUM AND TEXTBOOKS

The following were to be the major functions of the National Bureau of Curriculum and Textbooks [NBCT]:

- a) To assist and advise the government in the formulating and implementation of national policies with respect to curriculum development, research and evaluation, and textbook production.
- b) To coordinate the curriculum and textbook development activities and projects in the Provincial Bureaux and Textbook Boards.
- c) To provide leadership in curriculum and textbook development, in general, and take initiative and play an active role in those provinces where resources are yet to developed.
- d) To conduct research in curriculum development on different aspects of curriculum renovation for grade 1-12. To publish curriculum bulletins and handbooks.
- e) To collect information and data regarding curriculum development and textbooks production in other countries and, after assessing the development in the light of curriculum research, disseminate the same to the concerned Agencies.
- f) To provide guidance and resource material to Textbook Boards and authors in the production of textbooks, workbooks, primers and readers. to evaluate textbooks for all levels against national goals, aims and objectives.
- g) To advise concerning curricula and materials for special educational needs and community development projects.
- h) To liaise with educational institutions and authorities in Pakistan and with international agencies, such as UNESCO, I.B.E., UNICEF, I.L.O. on curriculum development, and with curriculum development organizations in foreign countries.

IV. TYPICAL CURRICULUM PROCESS

It usually includes the following five processes:

1. Establishing Schemes of Studies:

Schemes of Studies for a particular stage (viz. primary, middle/elementary, junior secondary and senior secondary) usually presents a frame-work of **subjects to be taught** at each grade or class according to the needs of students, as also **supported by** the national goals of development and general aims and objectives of **education**.

2. Designing Subject Curriculum for each grade/class:

The design incorporates (a) course aims and objectives, (b) content for **each subject** (c) suggested teaching methods and proposed textbooks, reference books, teaching aids etc. and (d) who should be consulted and how the proposed design of the **subject curriculum** is to be given final shape.

3. Developing Subject Curriculum Materials:

This includes books, teachers' guides needs, methods of teaching, equipment proposed (e.g. teaching kits etc.) and pre-testing of material.

4. Monitoring Delivery of Curriculum by Teachers:

Curriculum reflects what happens in school, whether within class-rooms or outside. It is the total process of delivery of knowledge and other activities related to **affective domain** or character formation. Examples set by teachers and **activities undertaken by** students throughout their study in educational institutions represent the **curriculum components**. Effective instructional supervision is, therefore, needed to monitor how the teachers actually deliver the curriculum.

5. Evaluating Subject Curriculum Effectiveness:

In all the above mentioned stages, proposals are identified to revise the design. This means that a detailed cyclical plan or programme of overall **continuity of the curriculum process** for each subject curriculum being called for, evaluation becomes an in-built component of the curriculum process.

V. PROCESSES AND STRATEGIES OF CURRICULUM DEVELOPMENT IN PAKISTAN: GENERAL BACKGROUND

Overall goals, aims and priorities are determined in national Five-Year Plans. Education policies spell out goals and aims of education. Policies reflect national aspirations, and socio-economic framework of the society. The national plan and education policy together present a programme of educational development to meet the immediate and long term needs of society.

The principles of policy having been so drawn, broad-based committees consisting of educators, subject-experts, teachers and administrators are generally constituted to delineate the goals and aims of education. One such Committee prepared a draft of goals and aims to be achieved through the curriculum. These were broken down into specific objectives classifying them into the following 4 x 3 matrix for each level of education:

	Cognitive	Affective	Psychomotor
a) Individual			
b) Social			
c) Cultural			
d) International			

The draft of goals, aims and objectives was then circulated to seek feedback from provincial curricula development Centres/Bureaux, Boards of Education (Bs, ISE,) Textbook Boards, Boards of Technical Education) teachers' associations, Institutes of Education and Research, Teachers Training Colleges and other related institutions and experts. The Committees scrutinized the comments and proposals for improvement of the draft and based on such feedback, the goals and aims were given final shape.

The following steps of processes/strategies were adopted in Pakistan for translating national goals of development into curriculum.

- 1 Identification or definition of national goals was the first step of the process. The goals may have quantitative and/or qualitative meaning in education, each demanding different curriculum strategies insofar as they relate to social, economic, moral and political aspects of life.
- 2 The next step of the process was to clarify the objectives in educational terms by involving major interested groups of educational planners and curriculum specialists.
- 3 The next process related to approbation and priority determination. Educational interpretation of the objectives needed to be shared with the originators of the material with aims to check the faithfulness of the translated material to allow the "priority of the possible" to be given to education and to ensure that suitable economic support will be available for resources needed.

- 4 The next step of the process related to broad assessment of how to determine or alter the balance of the total curriculum to achieve the objectives.
- 5 The fifth process was the work of specialist committees who devised the curriculum within their sphere of subject specialization. These committees were charged with the responsibility of developing details of contents, methods and materials. This process stage also involved classroom teachers because only they could ensure practicability of curriculum as effective teaching learning experiences. In this manner curriculum changes can occur in smaller measure annually, based on better understanding of matching the curriculum to national objectives.
- 6 The sixth process was one of review in which a higher level body including "outside" adviser/s reviewed the curriculum design prepared by specialist curriculum groups to ensure that the intentions of the education programmes were related to national goals. The "outsiders" involved persons like community practitioners who normally do not become involved in the process of curriculum development.

The preliminary drafts of curriculum materials developed by Provincial Textbook Boards for various subjects are generally selected in terms of learning packages in cognitive, affective and psychomotor aspects. Teachers from different schools teaching a particular subject were given training in teaching-learning processes and provided necessary instructional aids by Provincial Education Extension Services/Curriculum Bureaux. The instructional materials were then tried out. Experts drawn from the Curriculum Wing or the Provincial Curriculum Bureaux visit schools selected on the basis of stratified random sampling in rural as well as urban areas and observed the teaching of these lessons taught by teachers trained for this purpose. Pre-tests and post-tests were conducted on experimental and control groups to measure the extent of achievement of objectives expected to be achieved through the teaching-learning materials. The reliability of the process, however, remains questionable. In addition, teaching-learning problems were identified and effectiveness of curriculum materials assessed. The curriculum materials selected for pre-testing included the objectives stated in measurable terms, course contents, methodology recommended for facilitating the learning, the design and system of evaluation and guidelines for training of teachers.

After analysis of results of pre-testing or micro-testing conducted by a Provincial Curriculum Bureau or another teacher-training institution under the aegis of Curriculum Wing, the curriculum material was amended or modified by curriculum bureaux and the, provincial textbook Boards.

Following the finalization of subject curriculum, work on preparation and production of textbooks, training of teachers and production of instructional aids was undertaken. This means that when a new curriculum at any level is introduced, effort is made concurrently to prepare instructional aids and to train teachers for effective implementation of the revised curriculum.

School organization in Pakistan is not divided into uniformly exact stages. There are some schools which offer instruction from grade 1 to 10. Primary grades (1-5) are part of such high schools. Stage I, known as Elementary, offers eight years education including five years programme popularly known as "primary school" followed by three years education.

Larger proportion of primary education is imparted through separate primary schools. Independent institutional arrangements, supervisory and administrative personnel are provided for primary schools. Limited number of schools offer facilities for complete elementary stage. These are called "Middle Schools".

In curricular programmes 7-8 courses are offered at the elementary stage: languages, mathematics, general science, Islamiyat, social studies and practical arts primary classes. Languages, Mathematics and Islamiyat are given equal weightage in the scheme of studies. In other words each course is assigned 15% of the total allocation of study periods. Science and social studies are, however, allocated 12.5% and 10% of total time.

VI. CURRICULUM PROCESS ADOPTED AT SECONDARY LEVEL IN PAKISTAN

Scheme of Studies (Secondary)

As regards establishing the Scheme of Studies for secondary stage, broad framework was determined at national level. The Provinces were invited to offer comments and suggestions for improving the schemes of studies. However, no major deviation in the scheme prepared by the Curriculum Wing seems to have been made. Component-I (compulsory for all students) requires the study of four subjects 1. Urdu, 2. English, 3. Pakistan Studies and 4. Islamiyat. Number of papers, marks allocated to each subject and weekly periods are as follows:

Component I

S#	Subjects (Compulsory for all)	Paper	Marks	Weekly Periods
1	Urdu (please see note 'a' below)	One/two	75 to 150 marks	4-6
2	English	Two	150 marks (75 marks each papers)	6
3	Pakistan Studies	One	75 marks	3
4	Islamiyat (please see note 'b' below)	One	75 marks	3

Languages carry one or two papers of 100 to 150 marks with an allocation of 4 to 6 periods for each course. Pakistan Studies and Islamiyat carry equal weightage. Islamiyat in Component I is prescribed for all Muslim students. Non-Muslims may, at their free choice, study Islamiyat or Ethics (a course in universal morality) or any subject from "Y" list (which offers 25 optional courses as an alternative, if Islamiyat is not taken in component II).

Note: a) *The variation in the papers, marks and the periods per week assigned to Urdu in Component-I is meant to accommodate the teaching of a Provincial/Regional Language where necessary, provided that the Provincial/Regional Language if studied in this component, will not be taken up in component-II unless it is of an advanced level, including literature etc. If a Provincial language is taught, 75 marks may be allocated to the provincial language. In case Provincial language is not taught six periods with 150 marks may be allocated for Urdu.*

b) *'Islamiyat' in component-I is meant for all Muslim students, non-Muslim students may, at their free option study Islamiyat or Ikhlaiyat (a course in universal morality) Or any one subject from the 'Y' list reduced to 75 marks, provided that the subject chosen for study as an alternative to Islamiyat will not be taken up in component-II.*

Component II offers four subjects either in Science Group (i.e, Mathematics, Physics, Chemistry, Biology/Computer Science) or in General Group which also offers four subjects including (1) General Maths or Mathematics (2), General Science (3&4) two subjects: one from 'Y' list and one from 'Z' list. The number of papers, marks, weekly periods allocated to each subject are given in the Scheme of Studies as follows:

Component II

One of the following Groups

(Science Group)

S#	Subjects (Compulsory for all)	Paper	Marks	Weekly Periods
1	Mathematics	One	100	4
2	Physics	One	100	4+3
3	Chemistry	One	100	4+3
4	Biology/Computer Science	One	100	4+3

(General Group)

S#	Subjects (Compulsory for all)	Paper	Marks	Weekly Periods
1	General Maths or Mathematics	One	100	4
2	General Science	One	100	4
3	Students are given option to choose: i) 2 subjects from the 'Y' list (appended) ii) One subject from the 'Y' list and one from the 'Z' list (appended)		As indicated in the Scheme	

Component III consists of compulsory non-examination exercises including physical exercise of 15-30 minutes daily and training in civil defence, first-aid and nursing extending over 72 preceding the final examination.

Component II therefore requires the study of either four science subjects (Maths, Physics, Chemistry, Biology/Computer Science) or a possibility of combination of subjects.

For quite some time enrolment in Science group seems to be increasing. The 'Y' list of subjects theoretically makes it possible for students to select any of the 39 subjects. However, a large number of subjects are **not actually taught** in a vast majority of secondary institutions. As an example, Music, Turkish, Japanese, Spanish, Environmental Studies, Astronomy, Biology, Geometrical and **Technical Drawing**, Military Science etc. are seldom taught in secondary level institutions. **Even the details** of prescribed curricula of such subjects of 'Y' list are often not available, **either in the Curriculum Wing** or the Provincial Curriculum Bureaux. Availability of **teachers in such subjects** is also very limited, in fact rare. It seems doubtful whether even a single secondary school provides for instruction in subjects like Japanese, Astronomy, German, Chinese or Music.

The weightage of 4 courses is equal. This is a departure from previous schemes in which mathematics and biology formed **separate units** of study, whereby early selection of career in science was determined.

Under the "General Group" two courses are common; general mathematics or mathematics and general science, of equal weightage. Household Accounts or Elements of Home Economics was offered as an **alternative for general mathematics/mathematics** for girls. The option was withdrawn in 1981. This change was effected because of increased importance of mathematics at higher levels of learning. Two additional courses have to be chosen from a list of over 25 offerings, known as "**Y List**" of subjects.

Component II also offers skill-oriented subjects. "**Z List**" and offers five sub-groups: general, commercial, agriculture, industrial and home economics. This component combines theory and practical of 250 marks with a **time allocation** of 10 periods per week. Each sub-group presents 6-12 courses. The courses are practical-oriented and provide a basis for developing skills at a relatively advanced stage. This component has been adopted so that education may be related to community needs. The Y and Z Lists are suggestive to the requirements and resources available. (For details the appended scheme of studies may be consulted).

General knowledge of science is included in many subjects; earth sciences, economics, education, social sciences. Major features of the scheme are:

- a) Proportional weightage to **languages**, under common courses in component I. For foreign students, Pakistan Culture is offered as an alternative.
- b) Islamiyat/Ethics and Pakistan studies each has been assigned the status of a full subject.
- c) Component II ~~provides~~ ~~equal~~ ~~weightage~~ of equal weightage. Three streams are classified as basic sciences, ~~mathematics~~ and earth sciences.
- d) The "basic science" stream ~~offers~~ ~~four~~ science courses and introduces opening in scientific areas of study, both theory and practice. Graduates of this stream can move to medicine, engineering, pharmacy, agriculture or any other related

field: rationale being that 12 years education should offer a general base of education and provide for wider openings and discourage relatively earlier courses.

- e) The stream leading to higher studies in economics offers three allied courses (mathematics, economics and statistics). The fourth subject offers a few alternatives.
- f) Stream C is known as Earth Sciences. The four courses (mathematics, geology, general science, geography) are to be studied in this stream.
- g) Stream D is known as 'social sciences' with general mathematics and general science being common. Wide choice for third and fourth subject is available.
- h) "Humanities stream" offers general mathematics, Islamic studies and languages (including oriental and Western.)
- i) "Home Economics stream" includes two common courses (general mathematics and general science). For the selection of four other subjects of equal weightage, a list of 15 courses is offered.
- j) The last stream is known as 'commerce'. Three courses of equal weightage (mathematics, principles of accounting, and economics) are common. Two other courses may be selected from a list of over 12 courses.

Since mid-70s, the component of science and mathematics has been strengthened. The nature, objectives and scope of each subject (physics, chemistry, biology and mathematics) have been redefined. Covering fundamental branches of science, physics occupies a central position. Its utility to applied sciences e.g., engineering, industry has been adequately stressed. Recent explosion of knowledge has opened several new avenues in physics. Selection of content and its treatment have, therefore, been based on rediscoveries of laws of nature. New concepts about physical quantities have been introduced. Attempts have been made to familiarize the students with the use of S.T. units from the very beginning. Molecular theory of matter and atomic structure have been introduced.

More topics have been added to enrich the content of physics. An open-ended approach has been stressed in proposed experiments.

The objectives of teaching chemistry have been based on assimilating the basic principles governing the facts of chemical process rather than process itself. The curriculum in chemistry, as in physics, has been designed in continuity of the scope and content developed for lower classes. The curriculum consists of following three major parts with their weightage in terms of subject needs:

**Determined
Weightage**

- | | |
|--|-----|
| - Structural theory of chemistry | 50% |
| - Elements and their simple compounds | 40% |
| - Introduction to other branches of chemistry. | 10% |

Demonstration and practical, students exercises, list of charts, **models, approaches** and chemicals form an integral part of the curriculum in chemistry. **An in-built system** of evaluation in relation to objectives has been proposed.

Inclusion of biology as a subject in school system is a relatively recent development in Asia in general and Pakistan in particular. From late 50s to early 70s, biology was included in the scheme of studies for secondary classes in science and home economics groups, as an elective. Along with this, physiology and hygiene also formed one of the **optional** courses for science and humanities groups. This course included related material on **human body**, its different systems, and systems of some other living organisms. **This subject was considered** essential at higher secondary level with a view to preparing graduates for advanced courses in various fields of specialization such as medicine, agriculture and **pharmacy**. However, selected areas of biology were incorporated in allied courses of science such as physics, chemistry and general science.

Limited concepts of biological sciences were incorporated in science courses for earlier stages. Biology has gained progressively important position in various schemes of studies at elementary and secondary levels.

In addition, general science is a separate course placed in the **humanities group**, where it is a compulsory course. The course content possesses 13 themes, out of which **biology carries** 4 themes, i.e. about 13%.

Major objectives of teaching biology at the secondary level include:

- a) Understanding the world of nature, physical and biological.
- b) Ability to interpret natural phenomena.
- c) Gaining a better understanding of the meaning and purpose of life.
- d) Effective participation in solving problems of the human society.
- e) Maintaining and improving their health and share in the responsibility for protecting the health of the community by applying their **knowledge** of biology.
- f) Attaining an emotionally stable personality and making a **worthy social** adjustment.

- g) Utilizing a scientific approach towards solving problems dealing with the society and human welfare.

The procedure for curriculum development more or less in all developing and under developed countries is similar. In Pakistan the Curriculum Wing collects expertise from organizations where they are working. Educational institutions, training centres, industrial and commercial organizations are the major pools from where experts are selected/drawn. Keeping this criterion in view, the Ministry requested a few experts to frame an outline of curriculum in Computer Studies at Secondary and Higher Secondary levels in line with the following suggested parameters:

1. gain an understanding of information- processing, applications and methods,
2. develop a systematic approach to problem-solving in a computing context; and
3. obtain a broad grounding in the subject for further study.

The curriculum covers two parts. In part I, five broad themes are meant for grade 9. There are twenty-four practical activities for covering the above broad themes. Part II has nine broad themes for grade 10. Thus there are fourteen themes and thirty-eight practical for teaching biology as a unit of study at secondary level.

Scheme of Studies for Grade 11&12

The scheme of studies for grades 11 & 12 presents three components: component I comprises two required courses, Urdu and English. Where required by a provincial law, an Education Department may include a provincial language within the provision of time allocation for Urdu. Additional compulsory course on Islamic Education/Ethics and Pakistan Studies has been prescribed for all students. Components I and III are common plus any one of the eight Groups from Component II. All the Groups, and the courses within each, carry equal weightage. The Groups (major curricular streams) have been formulated to make the courses more coherent and inter-related. Subjects included in each Group supplement one another. General mathematics/ mathematics form an integral part of each group of study. However, the content and scope of general mathematics is of applied nature and aims at mental discipline as well as functional utility.

Introduction of a new subject and Development of its Curriculum by the Curriculum Wing: an illustrative example of Computer Studies

Computer Studies at Secondary and Higher Secondary levels was found to be an essential need of the country as felt by officers of Curriculum Wing and some teachers in general. Initially this subject had no space in the Scheme of Studies. In late eighties, it was introduced as an optional subject alternate to Biology at Secondary level as well as in the 'Z' and 'Y' lists of the subjects. At Higher Secondary level, the Scheme of Studies is under revision. However, all the BISEs in the country have been allowed to adjust this discipline according to their convenience.

It may of course be mentioned that school and college teachers need to be trained and adequate equipment purchased for the purpose.

Urdu was offered as a compulsory subject at the SSC level. This compulsion created difficulties for foreign students, who could not acquire mastery of the Urdu language at SSC level necessary for passing the examination. Therefore, Geography of Pakistan was offered to foreign students in lieu of Urdu compulsory. This subject had been introduced more than three decades ago, i.e., in 1960. Multiple socio-economic and political changes had also made it necessary to revise the said curriculum. It was, therefore, decided to update and revise the Geography of Pakistan curriculum keeping in view the modern approaches and needs of students. The revised curriculum was approved by the Ministry in 1993.

The actual number of parts mentioned was far less than the request. Many changes were introduced from time to time. The number of parts was reduced considerably. The present organizational structure is depicted in the following chart.

- 1. Joint Secretary (National Director General)
- 2. Deputy Secretary (National Director)
- 3. Assistant Secretary (National Director)

JEA (CURRICULUM WING)				
1. DEA (Basic Science)	2. DEA (Languages & Social Science)	3. DEA (Religion & Education)	4. DEA (Exams, Textbook & Sec. Education)	5. DEA (Teacher Education)
(i) AEA (Physics)	(i) AEA (100 & 11 Year)	(i) AEA (Islamiat)	(i) AEA (Exams)	(i) AEA (T. Ed)
(ii) AEA (Maths, Stat & Computer Science)	(ii) AEA (100 & 11)	(ii) AEA (Islam Studies)	(ii) AEA (Textbook Examinations)	
(iii) AEA (Biology)	(iii) AEA (English)	(iii)	(iii) SRD (Textbook Examinations)	
(iv) EO (Chemistry)	(iv) AEA (Urdu)	(iv) EO (Urdu)	(iv) EO (Urdu Text)	
A Project Director (National Director)		7 Project Director (National Director)		

VII INSTITUTIONAL ARRANGEMENTS FOR CURRICULUM DEVELOPMENT

Sections II and III spell out the legal provisions about the responsibility of the Federal Government to approve the curriculum and textbooks. The functions envisaged for the NBCT are given in section-III. Aside from the Curriculum Wing/NBCT, IPSET has also been established to bring about quality resource materials. This section briefly explains the institutional arrangement for curriculum development.

A. Organization of Curriculum Wing/N.B.C.T

When the scheme (P.C.D) of the National Bureau of Curricula and Textbook was submitted to the Planning Commission, in early 1970s, provision of the following posts was proposed:

1. Joint Educational Adviser (National Director General) 1
2. Deputy Educational Adviser (National Director) 8
3. Assistant Educational Adviser and Education Officers 22

The actual number of posts sanctioned was far less than the request. Many changes were introduced from time to time. The number of posts was reduced considerably. The present organizational structure is depicted in the following chart:

JEA (CURRICULUM WING)				
1. DEA (Basic Science)	2. DEA (Languages & Social Science)	3. DEA (Religious Education)	4. DEA (Exams, Textbook & Sec. Education)	5. DEA (Teacher Education)
i) AEA, (Physics Environmental Education).	i) AEA (Soc.Sc-I) Vacat	i) AEA (Islamiyat)	i) AEA (Exams)	i) AEA (Tr.Ed)
ii) AEA (Maths, Stats & Computer Science)	ii) AEA (Soc.Sc-II)	ii) AEA (Deeni Mardarsa)	ii) AEA (Textbooks Public Sector)	
iii) AEA (Biology)	iii) AEA (English)	iii)	iii) SRO Textbook (Private Sector)	
iv) EO (Chemistry)	iv) AEA (Urdu)	iv) RO (Islamiyat)	iv) EO (Agro Tech)	
6. Project Manager (Teacher Education)			7. Project Director (Population Education)	

The Curriculum Wing evolved a network of committees to enlist the participation of the following:

- a) Provincial Education Departments
- b) Boards of Education.
- c) Textbooks Boards.
- d) Teachers and supervisors.
- e) Education Extension Centres.

The committees are formed by obtaining nominations from the Provincial Education Departments who may include personnel from among the educational institutions (Schools-Colleges), Boards of Intermediate & Secondary Education, Textbook Boards, Institutes of Education and Research and Colleges of Education. The idea is to involve the experts, the working teachers and administrators of educational institutions of each province.

B. Institute for the Promotion of Science Education and Training

During 1989 this Institute was established with the cooperation and financial support of the Asian Development Bank. The main purpose of the Institute was to bring about quantitative expansion and quality improvement in science education at school level. Since June 30, 1994 it has been placed on recurring budget. The Finance Division have approved and regularized the IPSET with a total of 79 posts.

Curriculum Wing approved the following curricula and teaching learning resource materials produced by IPSET for implementation:

- a) Curriculum and syllabus for elementary grades 6-7 and 8.
- b) Curriculum and syllabus in Biology, Physics and Chemistry for secondary grades 9-10.
- c) Teaching Learning Resource materials comprises:
 - Textbook, pupils' manual and teachers' guide for grades 6, 7 & 8.
 - Biology: Textbook, pupils' manual and teachers' guide for grades 9-10.
 - Physics: Textbook, pupils' manual and teachers' guide for grades 9-10.
 - Chemistry: Textbooks, pupils' manual and Teachers' guide for grades 9-10.
- d) Adjustment of teaching learning resource materials: Keeping in view the comments and suggestions of National Curriculum Review Committee, college and school teachers and supervisors the teaching learning resource materials are being adjusted accordingly.

- The Curriculum Wing evolved a network of committees to enlist the participation of the
- e) **Distribution of Science Kit:** IPSET developed a science kit for elementary classes in collaboration with National Educational Equipment Centre (NEEC), Lahore. 5000 science kits have been distributed to schools in all provinces and federal area.

IPSET conducted the training of master trainers for secondary level in physics, chemistry, biology and of supervisors and administrators. It also provided support and supervision services in the training of 6000 secondary school teachers conducted by the provinces and federal area.

This Institute initiated the following steps to reform the examination system:

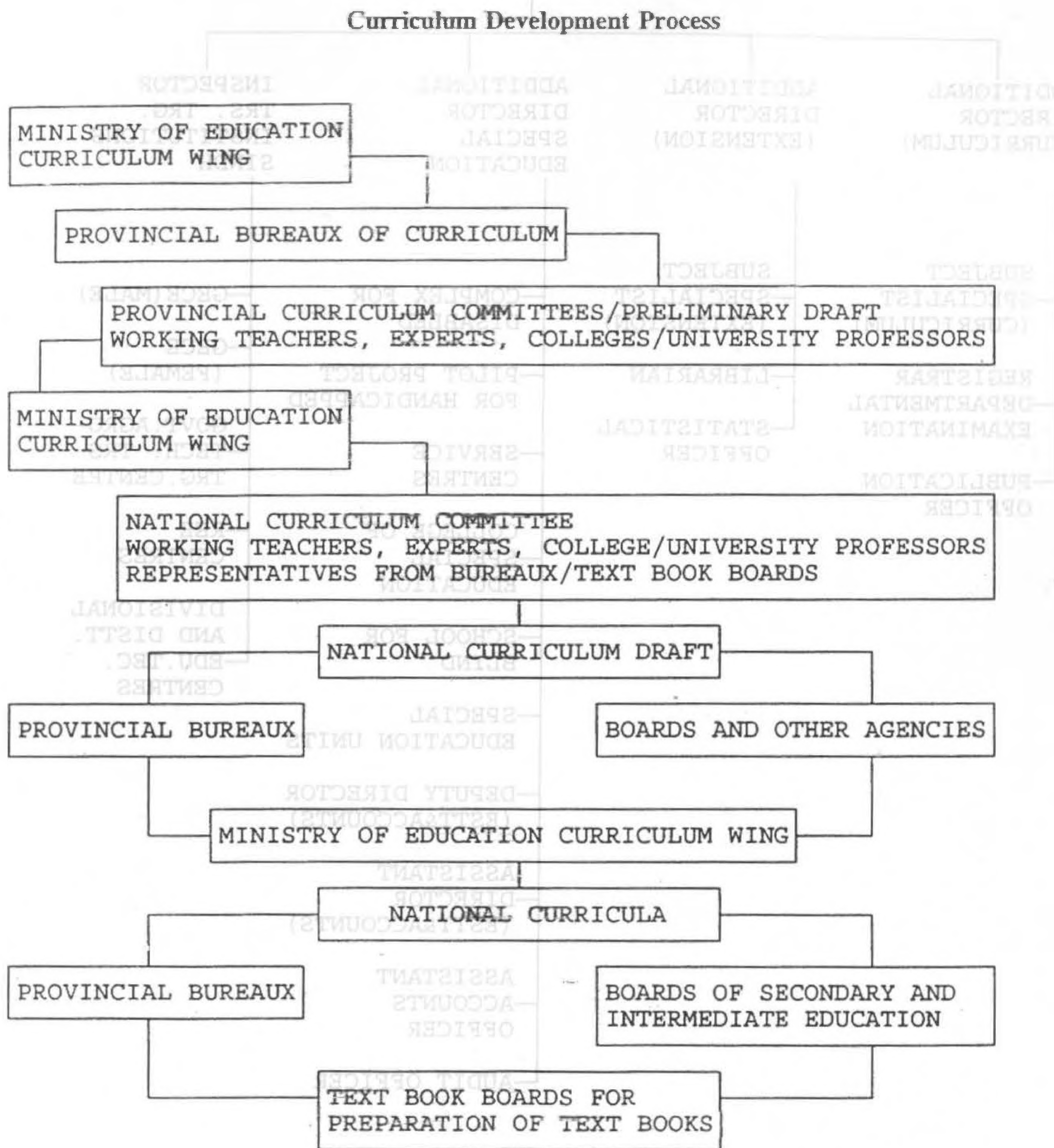
- a) **Development of Question - Item Bank for grades 6-7.**
- b) **Training of Teachers in Testing and Test development.**
- c) **Development of Resource Materials on Testing.**

Software in physics education was developed based on teaching learning resources material produced by IPSET. It launched and completed the following research studies:

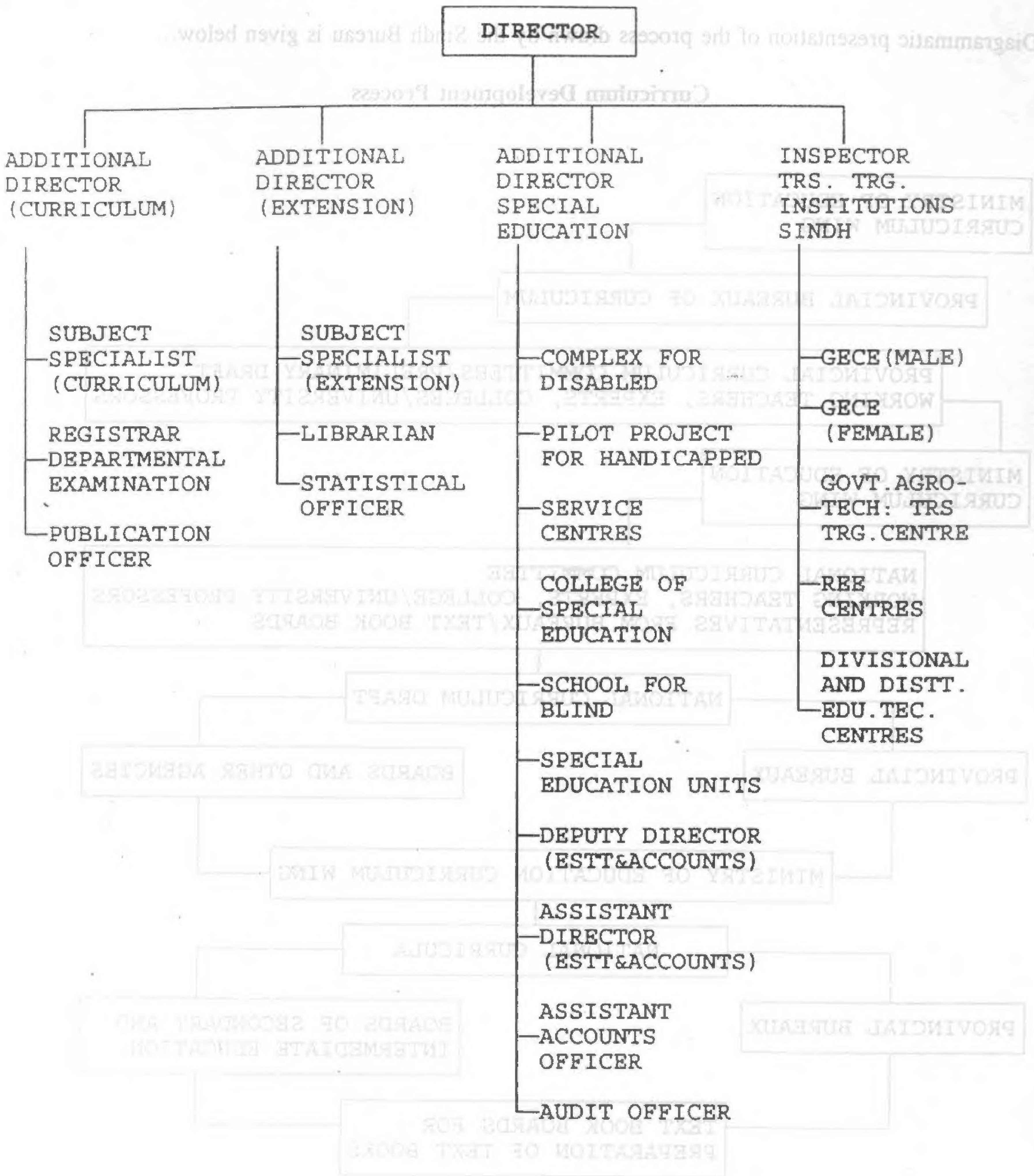
- a) **A study of dropouts studying science in secondary schools of Peshawar Division.**
- b) **A study of the present state of Science Education Curriculum for the training of science teachers at B.Ed level.**
- c) **Development and selection of test items for elementary classes.**
- d) **A study of scientific attitudes and skills of students of grades 9-10.**
- e) **Low-cost Science Activities for grades 6-10.**
- f) **Development of criteria and instruments to measure the teacher performance in teaching science.**
- g) **Alternate Practical Activities for Teaching Science (VI-VIII grade level).**
- h) **A study of the Relationship between the styles of Teaching adopted by Teachers and the Academic Achievement of Students.**

BUREAU OF CURRICULUM AND EXTENSION WING, SINDH

Diagrammatic presentation of the process drawn by the Sindh Bureau is given below:

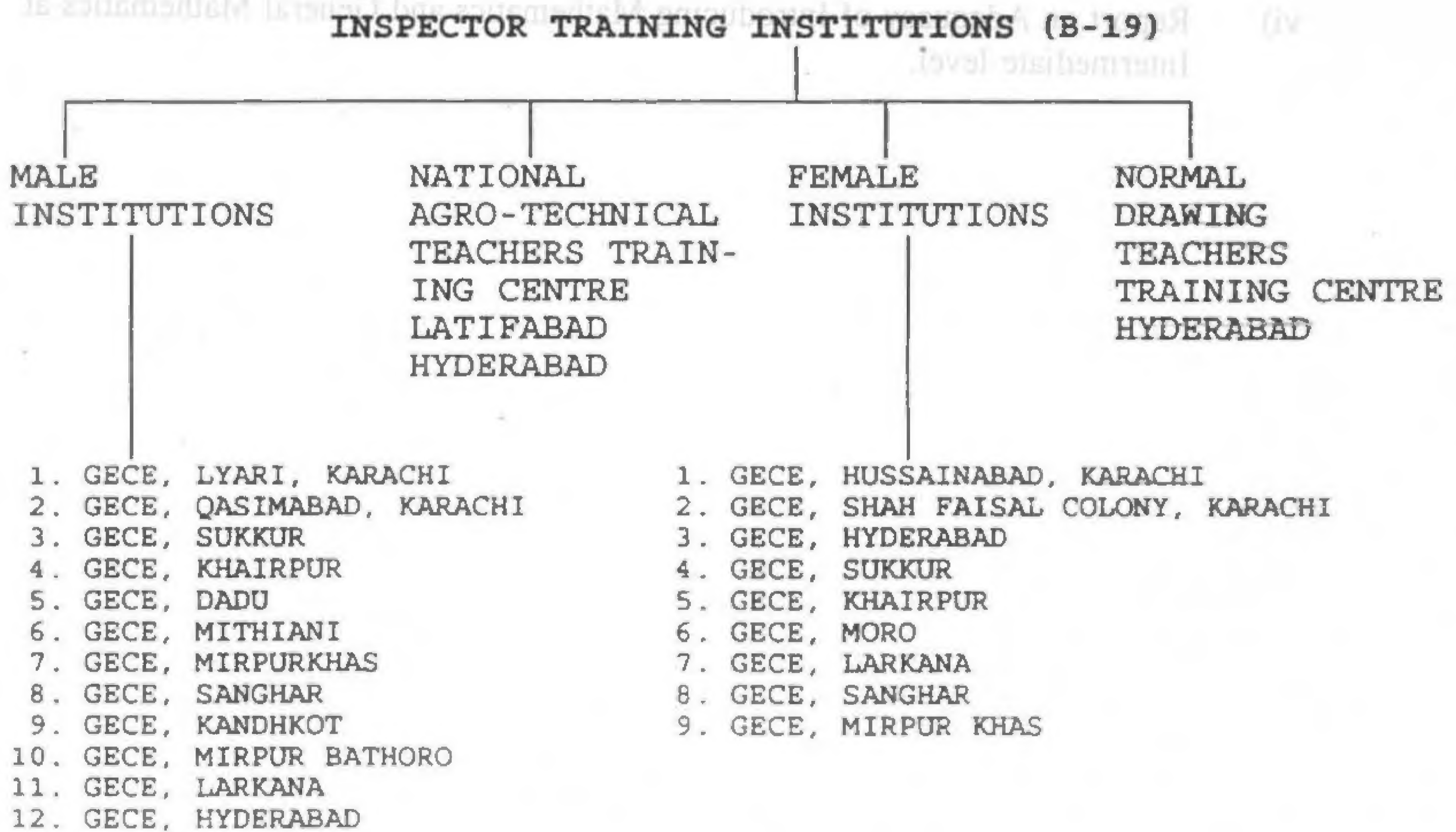
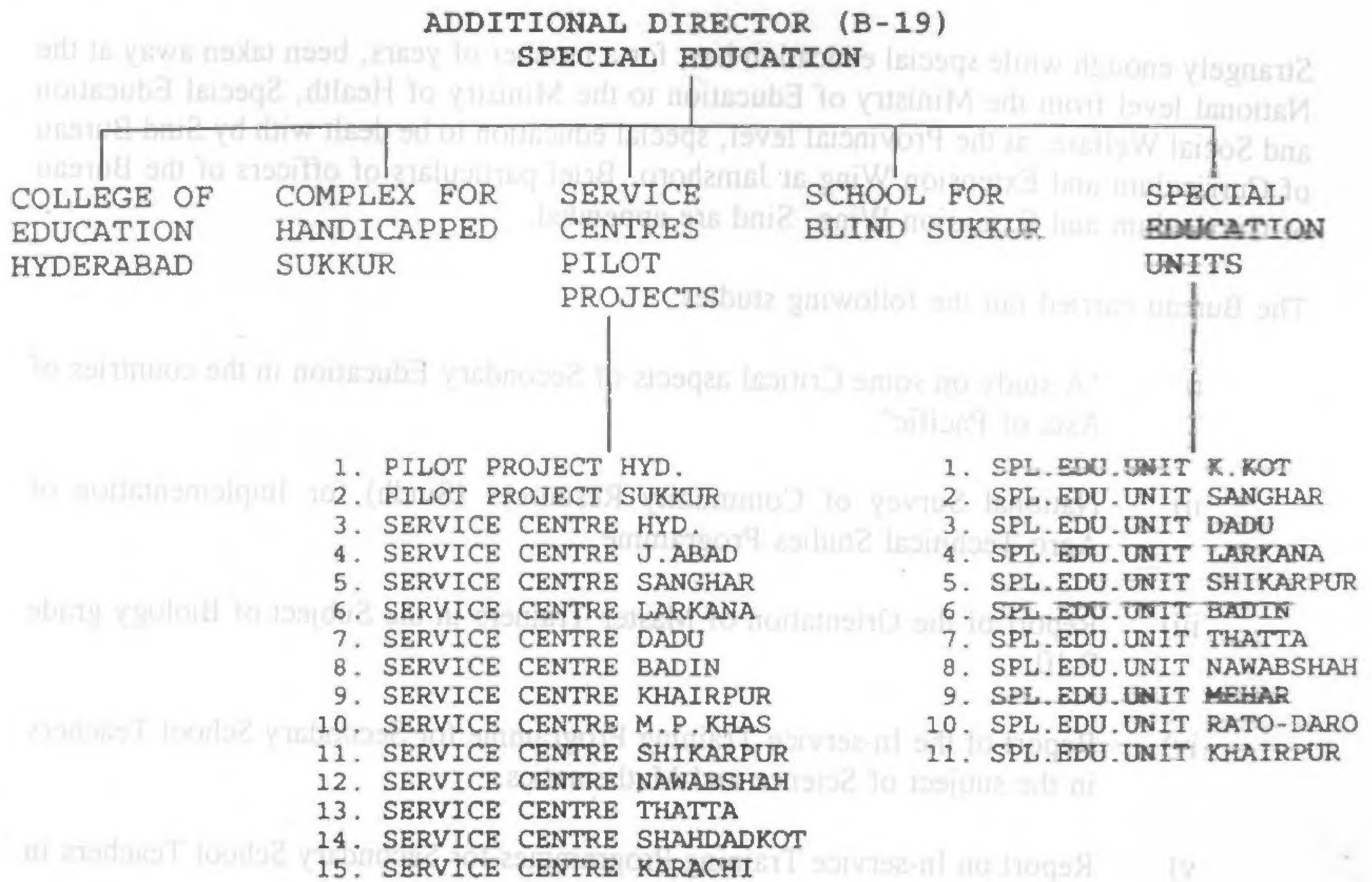


Organizational chart of the Sind Bureau is given below:



The above chart shows that an Additional Director Special Education and Inspector, Teacher Training Institutions, Sind are also working under the Director.

The institutions working under the Inspector Training Institutions are listed below:



The institutions working under the Inspector Training Institutions are listed below:

ADDITIONAL DIRECTOR (B-12)

Strangely enough while special education has, for a number of years, been taken away at the National level from the Ministry of Education to the Ministry of Health, Special Education and Social Welfare, at the Provincial level, special education to be dealt with by Sind Bureau of Curriculum and Extension Wing at Jamshoro. Brief particulars of officers of the Bureau of Curriculum and Extension Wing, Sind are appended.

The Bureau carried out the following studies:

- i) "A study on some Critical aspects of Secondary Education in the countries of Asia of Pacific".
- ii) National Survey of Community Resources (Sindh) for Implementation of Agro-Technical Studies Programme.
- iii) Report of the Orientation of Master Trainers in the Subject of Biology grade 9-10.
- iv) Report of the In-service Training Programme for Secondary School Teachers in the subject of Science and Mathematics.
- v) Report on In-service Training Programmes for Secondary School Teachers in the subject of Mathematics grades 6-8.
- vi) Report on Adequacy of Introducing Mathematics and General Mathematics at Intermediate level.



VIII CURRICULUM AND TEXTBOOK DEVELOPMENT ISSUES AND PROCEDURES

National Textbook Conference was organized at Karachi in early September, 94 by the Ministry of Education in cooperation with the Provincial Education Departments and International Organizations.

In his opening remarks on the above theme, the then Federal Education Secretary observed that all the issues of curriculum and textbooks were extremely vital to development of education. He observed that parents and children found the existing textbooks boring. He observed that the public sector could not perform this complex task alone. It was observed that the private sector could provide suitable support to improve the textbooks. Organization and functioning of the Provincial Textbook Boards was thoroughly discussed pro and con.

Final recommendations of the Conference are given below:

1. Multiple Textbooks may be allowed and the private sector will be encouraged to participate in Textbook publishing, production distribution and sales through a well defined system of competition.
2. In the transitional stage multiple textbooks will be allowed in selected subjects namely English, maths, Basic Sciences, computer sciences, statistics, teacher education, commercial and technical subjects for grades 9-12 and corresponding levels of education.

Multiple textbooks in English, maths and science at primary level will also be allowed. It is the intention of the Government that competitive textbook supply be introduced for all the subjects at all levels.

3. Ministry of Education will approve 2 or more series of textbooks according to a clearly laid down curriculum and well defined criteria.
4. The choice for selection of textbooks for grades 9-12 and corresponding course may lie with individual institutions out of the approved books.
5. At the primary level Provincial Education Departments would select from the approved books. However, provinces will gradually delegate this authority to lower levels down to individual institutions.
6. In case of books developed outside Pakistan there will be a tripartite arrangement between the concerned foreign agency, the concerned Textbook Board and a local publisher for their prescription and production for a specified period.
7. Paper and raw material for textbooks should be allowed duty free. As currently the imported books are allowed duty free and there is substantial tax and duty on imported raw material, there is need to rationalize this situation.

8. An institute be established to provide training in all faculties of publishing to private as well as public sector.
9. Proper specification would be laid down for textbook so that the price factor is determined.
10. A need-based project on textbooks funded by donor agencies will be launched.
11. Based on the deliberations of this conference a policy statement will be made by the government on this subject.
12. Gender biases should be eliminated.

An Action Plan for the implementation of the policy statement will also be developed by the Government.

In pursuance of the recommendations of the Conference, the Curriculum Wing has advertised the decision of the Government to introduce multiple textbooks in schools. The Wing have invited textbooks (along with teachers' guide) through an open competition for adoption in schools/colleges in the country in English (Compulsory and Elective) for grades 9-12, Mathematics, Physics Chemistry, Biology and Computer Sciences, Statistics and General Science (grades 9-12). Those who had presented their bids to Sind Textbook Board for grades 1-5 have been asked to recast and submit their work according to the advertisement.

Main point of the Advertisement include inter alia, the following:

1. The textbook/teacher guide etc will be prepared/adopted strictly in accordance with the National Curriculum approved by the Ministry of Education which is available with the Curriculum Wing of the Ministry of Education, Sector H-9, Islamabad either by post or in person against the postal order of Rs 200/= issued in favour of Joint Educational Adviser (Curriculum Wing). The materials will be entertained which are presented in their finished form (printed/prepress copies) with complete designs, Illustrations, exercises, etc.
2. The public and private sectors are eligible for participation. The overseas firms, having branches in Pakistan or others, can compete in consortium with any local public/private publishers/firms.
3. The materials will be evaluated by the committee of experts and finally approved by the competent authority which will have the right to reject any manuscript without assigning any reason. The decision of committee will be final and will not be challenged in any court within or outside the country. Those shortlisted firms whose materials have been approved by the competent authority will execute an agreement with the Federal/Provincial Government (s) or their authorized institutions for printing, publishing and distribution of the materials as per terms determined, such as the size, time, cost training etc.

4. The interested publishers/Firms in this undertaking wholly in consortium with local firm must get registered with the Curriculum wing by 31st Dec.1994 filling up Registration form (can be had on request) to determine their eligibility in textbook writing, printing, publishing and distribution etc. It would be advisable to undertake writing/adoption work when the firm has been shortlisted and certified as an eligible one. The shortlisted firms will be notified by 10th January 1995. The publication work will be undertaken through a special application form when approved by the competent authority in collaboration with any National institution or Provincial Textbook Board(s).

With this latest development, the private sector is being allowed to compete in the provision of textbooks at school level.

As already observed, the curriculum being generally up to the mark, the short-fall, if any, in the presentation of the material to students could now be made up through better textbooks at the secondary level. What, however is needed, is a system of evaluation of curriculum and textbooks. For this purpose there is a definite need to change the structure and functioning of the Curriculum Wing, to bring it in conformity with new purposes of education.

IX EXAMINATION OF EXISTING STRUCTURE AND PROCEDURES:

Under Federal Act X of 1976, the National Bureau of Curricula and Textbooks (Curriculum Wing) was declared to be competent authority with regard to curricula for grades 1-12. The Ministry of Education equated its Curriculum Wing with National Bureau of Curriculum and Textbooks. While the Government sanctioned a large number of posts for the National Bureau of Curricula and Textbooks, the Ministry unilaterally converted it into one of its Wings. This action had major implications for curriculum development. While the employees of the so-called Bureau became the employees of the Ministry of Education, subject specialization needed for effective staffing of the Bureau received secondary importance. Service rules of the Ministry did not provide for possession of subject-wise expertise required for the Bureau. As an example, for the post of Assistant Educational Adviser, Master's degree in any subject would make the applicants eligible for selection. In other words, if an expert in Physics or English was needed for the Bureau, no assurance could be given whether the person selected possessed these qualifications. If an applicant possessing qualifications in, say, Political Science could perform better in interview conducted by the Public Service Commission, he or she could be recommended for appointment. In other words, for post requiring competence in a particular school-subject there was no specific provision in the recruitment rules to ensure that the personnel to be selected did actually possess the needed qualifications. If the Bureau needed a curriculum developer in English the person selected might possess a Bachelor's degree in Engineering or a Master's degree in History / Political Science.

The Ministry rules also did not require that a person selected for a post originally created for the National Bureau of Curricula and Textbooks (NBCT) was actually to be posted to the Bureau itself. Posting of Ministry officers was always subject to the discretion of the Education Secretary. Some one selected for a post existing in the Curriculum Bureau could be posted to International Cooperation wing, Foreign Aid or Budget Section. Subject specialization did not always entitle an officer to be posted to a particular post. No separate set of qualifications was laid down for posts created for the Bureau. Selection of officers was, therefore, not linked with experience at a particular level. An AEA required for curriculum bureau may have all his experiences in a University or a College. General list of options in required qualifications did not enable the incumbent to develop curricula for a particular subject of level. The Curriculum Wing was, therefore, under-staffed in certain areas and over-supplied in others.

Transferability of personnel from one Wing of the Ministry to another did not enable the officers to look forward to working in Curriculum Wing on a long term basis. The staffing pattern of the Curriculum Wing met bureaucratic exigencies of the Ministry; it could not respond to modern challenges in curriculum development at either the primary or secondary levels.

When incentives were provided in the form of foreign training in ~~curriculum~~ other personnel got themselves transferred to the Curriculum Wing, availed of the facility or privilege of foreign training, reported back and got themselves transferred to posts in other Wings where they thought they could exercise greater influence / control over appointments of teachers in Federal Directorate of Education or in other autonomous organizations. Bureaucratic control

acquired through postings in different Wings of the Ministry led to a race among Ministry officers for posting to more lucrative positions. Personnel posted to Curriculum Wing may not have been so popular on socio-metric scale and entitled to more prestigious postings.

Education policies were announced by the Federal Government from time to time. Their implementation was, however, seldom taken rather seriously. There has not been much of continuity in the process of curriculum development and improvement.

There has been a lot of duplication of functions between the Provincial Curriculum Bureaux and the Curriculum Wing, particularly when the Federal Government took over control of curriculum and textbooks through the 1976 Act. The provinces seem to have adopted an attitude of withdrawal. They stopped asserting in matters of curriculum. The process of so-called feedback in curriculum improvement became rather weak.

No effective mechanism seems to have been evolved to ensure participation of hundreds of thousands of working teachers in curriculum development or textbook preparation / improvement. Selected few seem to enjoy more bureaucratic powers about "do's" and "don't's" without utilizing the ideas of genuinely interested teachers and other professionals. Curricula seem to have been more of the nature of imposition approach rather than collaboration in improvement of the process. Comparative study of curricula having seldom been undertaken, the system became somewhat sterile.

Centralization of the education system did not allow emergence of different models of curricular development and textbook improvement. GCE, (O or A level system) was generally more expensive and thus not within the reach of common students. National Curriculum (on the basis of which the examining boards are awarding SSC/HSSC Certificates) further confirms the need of students to conform to conformity.

Despite severe criticism, the secondary level curriculum has been in existence for many years. Had it been that defective, (as it is alleged to be in sweeping criticism) it could not have continued without being modified. Secondary level curriculum provides a lot of continuity to the system. It performs the usual role of conservation of values and has been getting a lot of support from the continuity of the educational system.

Some secondary stage students belonging to poor income level families purchase second hand textbooks. As such, secondary level schooling continued to remain rather inexpensive. Most parents are not compelled to withdraw their children from school because of high costs of textbooks and learning materials.

Pakistan's secondary curriculum provides a framework of equality of opportunity for all. Since the so-called elite schools also follow the centrally defined secondary curriculum, all learners can equally benefit for schooling. Secondary curriculum is the hub of the homogeneous secondary school system. The singularities of separate elite system are most usually rounded off in the "common mold" of secondary curriculum in Pakistan.

In the domain of "specialties", multiple alternatives remain limited. Each student can prove his or her worth in the SSC/HSSC examinations. It is alleged that secondary curriculum does not encourage exploration, discovery and/or adoption of scientific approach. However, the

basic framework provided by the curriculum forms the very basis from which talent can be developed. It is also said that secondary school teachers do not frame the secondary curriculum. The fact remains that secondary curriculum cannot be decided by teachers having limited vision and restricted worldview of life. Unless university professors and knowledgeable experts define the parameters of curriculum, standard curriculum cannot be developed. Class room activities have to emerge from what is prescribed in the curriculum being a weak link, it cannot be concluded that the curriculum itself is bad. There is, therefore, nothing greatly wrong, with Pakistani secondary level curriculum when it is judged on an international comparison, in terms of student-learning.

When both the talented and the common students receive the same type of instruction on the same curriculum, quality can emerge on the basis of differentiated abilities of students. Any out-line of curriculum design has to ensure that the curriculum serves the function of promoting common learning, i.e., general education. Exploration and specialization have to be linked with students' potential in terms of self-realization and vocational/academic opportunities. The Pakistan secondary curriculum, therefore, does provide a good general framework. If the teachers (who have to deliver the curriculum) are not properly qualified academically and trained professionally, the blame cannot be shifted to inadequacy of curriculum.

X TOWARDS IMPROVING THE PROCESS IN PAKISTAN

The Federal Act of 1976 authorized the competent authority to perform functions already quoted. Through their Notification issued in December, 1976 the Ministry of Education appointed the National Bureau of Curriculum and Textbooks (Curriculum Wing) to be the competent authority for the purposes of the said Act for grades 1-12 and all certificates/diplomas not awarded by degree awarding institutions and universities. The National Bureau of Curriculum and Textbooks was actually not established. On the other hand, a Wing of the Ministry was parenthetically equated to National Bureau of Curriculum and Textbooks.

Creation of a viable institution seems to be an essential pre-requisite to make arrangements for future development and evaluation of curricula previously approved. The Curriculum Bureau should have its own separate (i) sanctioned posts (ii) recruitment rules and (iii) powers and duties of the Head of the Bureau and other personnel working under him. Non-existence of a separate set of rules applicable to the Curriculum Bureau provides an ample evidence that the Bureau was not actually established. A viable institutional arrangement has to be distinctly separate and different from the current confusing situation created by existence of a Curriculum Wing in the Ministry itself. Vested interests in the Ministry of Education led to its own expansion by mis-using and appropriating the finances sanctioned for the Curriculum Bureau. The Curriculum Bureau needs to have personnel possessing expertise in the subject matter plus professional qualifications required to conduct comparative study of curricula for each grade/class and to evaluate the subject syllabuses and textbooks. Pending creation of a viable institution, the existing manpower financial resources available to Curriculum Wing and IPSET need to be utilized in better liaison and mutual harmony. While IPSET seem to have developed better details of curricula and teaching-learning resource materials, the utility of their work has still not been effective. Unnecessary duplication could and should be avoided. Curriculum Wing and IPSET can develop close link in so far as science subjects are concerned.

Fruitful relationship between the Federal and Provincial Governments has to be based on competency in different subjects coupled with professional knowledge, not bureaucratic line of control.

Supervision of the process of curriculum delivery by the secondary level institutions need also be strengthened at provincial/local level.

Many Federal Government officials do not seem to be committed to development/improvement of the curriculum itself. Peripheral aspects, e.g., development of teachers' guides/manual etc. seem to have been receiving greater attention and importance. Subject-matter curriculum itself received secondary importance.

The Scheme of Studies for grades 11 and 12 not yet been officially approved. There is a definite and urgent need to finalize the Scheme. This task can be undertaken after an institutional arrangement is provided for curriculum development and evaluation of what has so far been accomplished.

The Federal Act of 1976 authorized the competent authority to perform functions already quoted. Through their Notification issued in December, 1976 the Ministry of Education appointed the National Bureau of Curriculum and Textbooks (Curriculum Wing) to be the competent authority for the purposes of the said Act for grades I-12 and all certificates/diplomas not awarded by degree awarding institutions and universities. The National Bureau of Curriculum and Textbooks was actually not established. On the other hand, a Wing of the Ministry was parenthetically equated to National Bureau of Curriculum and Textbooks.

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ANNEXURES

Functional relationship between the Federal and Provincial Governments has to be based on competency in different subjects coupled with professional knowledge, not bureaucratic hierarchy of control.

Supervision of the process of curriculum delivery by the secondary level institutions need also be strengthened at provincial level.

Many Federal Government officials do not seem to be committed to development/improvement of the curriculum itself. Technical aspects e.g. development of teachers' guides/manual etc. seem to have been treated as mere technical and administrative subject-matter curriculum itself received technical superiority importance.

The Scheme of Studies for grades 7 and 12 are yet to be officially approved. The domain and content need to finalize the scheme. This task can be undertaken only by a national level assessment is provided the curriculum development and evaluation work can be completed.

THE GAZETTE OF PAKISTAN
EXTRAORDINARY
PUBLISHED BY AUTHORITY

ISLAMABAD, SATURDAY, APRIL 3, 1976

PART I

Acts, Ordinances, President's Orders and Regulations

NATIONAL ASSEMBLY SECRETARIAT
Islamabad, the 3rd April, 1976

The following Act of Parliament received the assent of the President on the 29th March, 1976 and is published for general information:-

ACT No. X OF 1976

An Act to make provision for Federal supervision of curricula text-books and maintenance of standards of education.

Where-as it is necessary to provide for the building up of national cohesion by promoting social and cultural harmony, and designing curricula relevant to the nation's changing social and economic needs, compatible with the basic national ideology and providing massive shift from general education to more purposeful agro-technical education; and to make provision for Federal supervision of curricula, text-books for various classes and maintenance of standards of education:

It is hereby enacted as followings:-

1. Short title, extent and commencement.- (i) This Act may be called the Federal Supervision of Curricula, Text-books and maintenance of Standards of Education Act, 1976.
(ii) It extends to the whole of Pakistan.
(iii) It shall come into force at once.
2. Definition:- In this Act, unless there is anything repugnant in the subject or context.

(a) "Competent Authority" means an authority appointed as such under section 3; and "institution" means a school, college or university and includes such other educational establishment as the Federal Government may, by notification in the official Gazette, specify for the purpose of this clause.

3. Appointment and duties of Competent Authority. (1) The Federal Government may, by notification in the official Gazette, appoint one or more Competent Authorities, for carrying out the purposes of this Act.
(2) The Competent Authority may, for carrying out the purposes of this Act:-

- a. prepare or cause to be prepared schemes of studies, curricula, manuscripts of textbooks and schedules or strategy for their introduction in various classes of an institution in connection with the implementation of the education policy of the Federal Government.
- b. approve manuscripts of text-books produced by other agencies before they are prescribed in various classes of an institution; and
- c. direct any person or agency in writing to delete, amend or withdraw any portion, or the whole, of the curriculum, text book or reference material prescribed for any class of an institution within a period specified in such directive.

(3) Action on the directive of the Competent Authority under clause (c) of sub-section (2) of section 3 fails to carry it out, he shall be punishable with imprisonment for a term which may extend to one year and shall also be guilty of gross misconduct; and such agency may be superseded by order of the authority appointing or constituting it.

5. Jurisdiction to try offences. No court shall take cognizance of an offence punishable under this Act except upon a complaint in writing made by the Competent Authority.
6. Indemnity:-No suit, prosecution or other legal proceeding shall lie against any person for anything which is in good faith done or intended to be done in pursuance of this Act.

MOHAMMAD ILYAS
ADDITIONAL SECRETARY

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TO BE PUBLISHED IN PART I OF THE GAZETTE OF PAKISTAN

GOVERNMENT OF PAKISTAN
MINISTRY OF EDUCATION

NOTIFICATION

ISLAMABAD- DECEMBER 4, 1976

No.D.773/76-JEA(Curr). In exercise of the powers conferred by sub-section (1) of Section 3 of the Federal Supervision of Curricula, Textbooks and Maintenance of Standards of Education Act 1976 (X of 1976), the Federal Government is pleased to appoint the following to be Competent Authorities for carrying out the purposes of the said Act:

- a) National Bureau of Curriculum and Textbooks (Curriculum Wing), Ministry of Education, Government of Pakistan, for purposes of the said Act relating to classes I-XII and to all Certificates and Diplomas not awarded by Degree awarding Institutions and Universities.
- b) University Grants Commission for purposes of the said Act relating to education beyond class XII at Bachelor level and onwards and to all degrees, Certificates and Diplomas awarded by Degree Colleges, Universities and other institutions of higher education.

Sd/-

(DR. R. A. SHAIH)

JOINT EDUCATIONAL ADVISER/J.S

The Manager,
Gazette of Pakistan,
Printing Corporation of Pakistan Press,
Karachi.

Copy forwarded with compliments for information to:

1. The Chairman, University Grants Commission, H-9, Islamabad.
2. All Officers of the Ministry of Education.

Sd/-

(H. B. AHMED)

"Islamiyat" in component-I is meant for all Muslim students, non-Muslim students may, at their free option study Islamiyat OR Ikhlaqiayat (a course in universal morality) OR any one subject from the "Y" list reduced to 75 marks, provided that the subject chosen for study as alternative to Islamiyat will not be taken up in component-II.

5. As a general principle, a subject offered in one component will not be offered in an other component. Thus students taken up an Industrial vocational subject in component-III will not take up "Geometrical and Technical Drawing" in the "Y" list in component-II likewise girls choosing Home Economics subjects in the "Z" list would not take any Home Economics subject from "Y" list and vice versa.
6. The "Y" list and "Z" list of subjects are only suggestive and may be curtailed/expanded and introduced in schools according to the requirements and resources of an area.
7. It is the intention of the scheme that each province shall decide which school shall teach which subject or group of subjects in "Y" and "Z" lists. This decision will depend upon the local needs and resources. It is not envisaged that every school will teach every subject/vocational Group/Trade Group.
8. A school may be allocated one of the trade groups of Industrial subject from the "Z" list.
9. In imparting vocational training, efforts should be made to utilize local/indigenous resources and to involve the local community as far as possible and to emphasis the element of dignity of labour and respect for those who work with their hands.
10. The concept of the scheme envisages that the teachers will use their initiative and innovation abilities to design projects/activities/instructional units/modules in the presentation of the "Z" list of vocational subjects. In most subjects in this list, work sheets, Job sheets, information sheets, assignment sheets will be all that is required.
11. In the subject of Local (Community) Crafts in the "Z" list of General Vocational subjects, the national Curriculum only provides broad out lines. It is intended that detailed Curricula in each Craft, including methods/criteria of evaluation will be developed by the school in consultation with local artisans who would also be use as resource persons for implementing the curricula in each school.

"Y" LIST OF SUBJECTS (100 MARKS EACH)

1. Physical Physiology and Hygiene.
2. Geometrical and Technical Drawing
3. Geology
4. Astronomy and Space Science
5. Arts and Model Drawing
6. Environmental Studies.
7. Islamic Studies or Islamic History
8. History of Indo-Pak Sub-Continent
9. Arabic
10. Persian
11. Geography
12. Economics
13. Civics
14. Food and nutrition
15. Related Art
16. Household Accounts & Related Problems
17. Elements of Home Economics
18. Management for better Homes
19. Clothing and Textile
20. Child Development and Family living.
21. Military Science
22. Commercial Geography
23. Music
24. Urdu Literature
25. English Literature
26. Sindhi
27. Punjabi
28. Pushto
29. Baluchi
30. Gujrati
31. Turkish
32. Bengali
33. Chinese
34. French
35. Russian
36. German
37. Japanese
38. Spanish
39. Computer Science.

GENERAL

COMMERCIAL

AGRICULTURE



"Z" LIST OF VOCATIONAL SUBJECTS (100 MARKS EACH)

GENERAL:

If a student opts for only one subject from the "Y" list he/she shall have to opt for the second subject from the "Z" list. In case a student has already opted two subjects from the "Y" list no subject in to studies from the "Z" list.

1. Education.
2. Health and Physical Education.
3. Elementary Nursing and First Aid
4. Calligraphy.
5. Photography.
6. Local (Community) Crafts.
7. Computer Education.

COMMERCIAL:

Student may take subject "Type Writing" which is compulsory carrying 50 marks and one subject from No.2 to 8 each carrying 50 marks.

1. Type Writing (Compulsory)
2. Book Keeping and Accounts.
3. Secretariat Practice.
4. Business Methods.
5. Salesmanship.
6. Insurance.
7. Banking.
8. Import and Export Procedure.

AGRICULTURE:

Student may take "General Agriculture" which is compulsory carrying 50 marks and one subject from No.2 to 7 carrying 50 marks each.

1. General Agriculture (Compulsory core course).
2. Farm Economics
3. Crop Production.
4. Live Stock Farming.
5. animal Production.
6. Productive Insects and Fish Culture.
7. Horticulture.

INDUSTRIAL:

Student may select any one subject from one of the following Trade Groups except Mechanical Trade Group for which separate instructions are given below:
Each subject carries 100 Marks, including 50 marks for Technical Drawing.

1. Mechanical Trades Group (Fitting will be compulsory in class IX for all students taking this group. In class X Students will opt for one of the remaining trades or continue fitting).

1. Fitting
2. Turning
3. Plumbing
4. Welding
5. Electro-Plating.
6. Melding & Casting.

2. Electrical Trades Group:

1. Electrical Wiring
2. Electrical Winding
3. House-hold Appliances
4. Radio Servicing.

3. Wood Trades Group:

1. Furniture and Cabinet Making.
2. Wood Carving and Inlay work.
3. Joiner.
4. Wood Turning and Lacquer work.

4. Drafting Trades Group:

1. Mechanical Drafting
2. Civil Drafting

5. Printing and Graphic Trades Group:

1. Elementary Printing.
2. Book-binding.

6. Ceramics Trades Group:

1. Ceramics.
2. Class-making.

7. Building Trades Group

INDUSTRIAL

1. Building Trades (Masonry) Distemping. Painting &
2. Elementary surveying.

8. Textile Trades Group:

1. Dyeing Dry cleaning & Laundry.
2. Plain Weaving.
3. Carpet Weaving.

9. Auto Trades Group:

1. Auto Servicing
2. Denting and Spray Painting.
3. Auto electricity
4. Agricultural Implements Repairing.

10. Refrigeration and Air Conditioning Trades Group:

- i. Refrigerator and Air Conditioning Trades Group:

11. Miscellaneous Trades Group:

1. Leather Work
2. Watch Repairing
3. Rubber and Plastics.
4. Gents Tailoring.

HOME ECONOMICS:

Student may take "Principles of Home Economics" which is a compulsory subject carrying 50 marks and any one of the subjects from No.2 to 10 each carrying 50 marks.

1. Principles of Home Economics (Compulsory)
2. Related Art.
3. Hand and Machine Embroidery.
4. Drafting and Garment Making.
5. Hand and Machine Knitting and Chrocheting.
6. Stuffed Toys and Doll Making.
7. Confectionary and Bakery.
8. Preservation of Fruits, vegetables and other Foods.
9. Care and Guidance of Children.
10. Farm House-hold Management.

CURRENTSCHEME OF STUDIES FOR INTERMEDIATE LEVELCOMPONENT-ICompulsory for all

- | | | | |
|----|--|----------|-----------|
| 1. | English (Compulsory)
OR
English (Advanced) | 2 Paper | 200 Marks |
| 2. | Urdu (Compulsory)
OR
urdu (Salees) in lieu of Urdu (Compulsory)/Pakistan Culture.
Pak.Culture for Foreigners Part-I | 2 Papers | 200 Marks |

AND

Pakistan Culture - Part-II

- | | | | |
|----|---|---------|----------|
| 3. | Islamic Studies/Civics
(For Non Muslims) | 1 Paper | 50 Marks |
| 4. | Pakistan Studies | 1 Paper | 50 marks |

Humanities Group

Select one set of three subject of 200 Marks each from the following sets:

Set-I	Set-II	Set-III
1. Mathematics	Statistics	Psychology
2. Mathematics	Statistics	Geography
3. Economics	Statistics	Geography
4. Economics	Islamic Studies	Civics
5. History	Islamic Studies	Civics
6. History	Islamic Studies	Civics
7. Economics	Islamic Studies	Arabic/Persian
8. Islamic Studies	Health & Physical Education	Psychology Urdu Advanced/ Arabic

DATE DUE

C U R R E N T		
15 AUG 1998		
25 AUG 1998		
Compulsory for all		
English (Compulsory) 2 Paper 200 Marks		
OR		
English (Advanced)		
OR		
Urdu (Compulsory) 2 Paper 200 Marks		
OR		
Urdu (Selected) in lieu of Urdu (Compulsory) / Pak. Culture for Foreigners Part-I		
OR		
Urdu		
Pakistani Culture - Part-I		
OR		
Islamic Studies / Iqbal 1 Paper 50 Marks		
OR		
Pakistani Studies 1 Paper 50 Marks		
OR		
Pakistani Group		

Select one set of three subject of 200 Marks as following set: